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SHRINKING THE JTF STAFF: CAN WE REDUCE THE FOOTPRINT ASHORE?

A Monograph
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ABSTRACT

SHRINKING THE JTF STAFF: CAN WE REDUCE THE FOOTPRINT ASHORE? by Major Michael D. Wykoff, USMC, 50 pages.

This monograph discusses four factors that influence the reduction of the Joint Task Force (JTF) staff and its associated footprint in the area of operations.

The first factor is concerned with the degree of personal interaction required on a large staff. The commander and staff actions, necessary for effective information exchange and decisionmaking, require a significant degree of personal interaction. Direct interaction, where dialogue occurs both verbally and non-verbally, serves to minimize miscommunication, generate ideas and inspire subordinates.

The second factor is concerned with how future warfighting concepts will allow the JTF to operate with a "virtual staff". This will be possible through advanced communications technologies that will speed information flow and transmit an electronic picture of the battlefield as part of the commander's shared mental image. But communication tools cannot displace person-to-person interaction. In a dynamic, complex environment, commanders and staff members cannot be limited to gaining awareness of a developing situation through electronic reports or a camera. They must have the freedom to gain information by experiencing the environment.

The third factor is concerned with the significant manpower devoted to addressing a broad range of warfighting, non-traditional and coalition force-related tasks in the area of operations. Operations in Somalia and Haiti illustrate the various specialized staff cells that JTFs form to deal with service differences, language and cultural barriers, and nonmilitary agencies with their own agendas. These tasks will continue to tax the forces committed in theater.

The final factor is concerned with the complexity of communications in modern and future JTF operations, and the need for hundreds of servicemen and specialists to operate and maintain the communications systems.

Combined, these factors will inhibit attempts to reduce the command, control and communications footprint in the theater of operations.

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Since the Napoleonic era, commanders have needed staffs to assist them with command and the control of military forces. As armies have grown in size, so have both their associated areas of operations and the staffs created to assist commanders in their management. Commanders have grappled constantly with the problem of maintaining command while tied to an increasingly large and immobile staff. Commanders have succeeded by visiting the combat forces often, by shrinking the staffs when possible, and by making command posts more mobile. Field Marshal Viscount Slim, who commanded coalition forces in a large theater with extended lines of communication (LOCs), performed well, partly because he believed firmly in efficient, lean and mobile staffs.[1]

Today, the US military anticipates conducting joint and combined operations over extended LOCs. The inherent difficulties of command will be complicated further by the preliminary force projection problem, the requirement to begin most operations with rapid deployment from a distant base to confront an often highly mobile enemy force close to its own base. Besides warfighting, operations may also involve extensive non-traditional tasks, such as humanitarian relief and peace operations. Each has its own unique requirements for command and control.

To enhance command and control in this environment, the US military is examining ways to incorporate technology to help shrink the staff and its footprint in theater and allow the commander the personal mobility he requires to maintain continuous contact with units and staffs. New concepts, relying on automated systems and robust communication links, will permit locating much of the staff and its associated equipment aboard ships or in CONUS. Face-to-face interaction among commanders and staffs will

be supplanted partially by video teleconferencing, local and wide area networks, and electronic generation of current situation maps and operational orders.

The advantages are readily apparent. A smaller headquarters and support structure in theater means more of the nation's limited sea and airlift assets will be dedicated to projecting vital combat forces to the site of operations. A smaller headquarters is also more mobile and therefore more survivable.

Shrinking the staff can enhance command and control. A smaller staff can set up quickly in theater, and be ready to conduct planning and oversee operations during the critical early stages of a crisis. A non-deploying CONUS-based staff can run operations while the small, forward-based command post is moving into the theater.

This vision of a small, mobile staff, networked electronically to subordinate commands and staffs, to support elements in CONUS, and even to the staff's own commander, is embraced as the future of warfare by the US Army, the Marine Corps, the Joint Chiefs of Staff (JCS) and others.[2] While such concepts may serve as guideposts along the path to the military's desired endstate, there are some significant obstacles that prevent this vision from becoming a near-term reality.

This paper will explore four factors that influence the reduction of the Joint Task Force (JTF) staff and its associated footprint in the area of operations. The first factor is concerned with the degree of personal interaction required on a large staff that impedes efforts to conduct extensive split-based operations. The second factor is concerned with how future warfighting concepts will allow the JTF to operate with a "virtual staff". The third factor is concerned with the broad range of warfighting, non-traditional and coalition

force-related tasks a JTF staff must perform on land, in the area of operations. The final factor is concerned with how the complexity of communications in modern and future JTF operations requires a large communications footprint ashore.

The first topic requires an analysis of how the commander, the staff and subordinate commanders traditionally have interacted to make decisions. The second topic requires an examination of how the Army's Force XXI and the Marine Corps' Sea Dragon concepts will change the way information is exchanged, yet still allow timely and correct decisionmaking. The third and fourth topics require an analysis of modern operations that reflects the operational environment described previously.

This monograph will use two historical examples as a basis for analysis. Operation Restore Hope was the first modern deployment of significant forces to execute a primarily non-combat operation. The forces involved had little planning time before deployment. The remoteness and austere conditions of Somalia taxed US logistics and communications capabilities. The mission required a high degree of coordination and cooperation among the joint and component staffs, and between military and non military, and governmental and non-governmental agencies. The staff for JTF Somalia was very large, as was the theater communications footprint.

Two years later, the US executed operations in Haiti. Operation Uphold Democracy was sufficiently different from Restore Hope to provide an appropriate contrast between the two operations. The operation was planned over a longer period. It largely involved US Army forces, and initially, it did not involve many coalition forces. The proximity of CONUS greatly eased communications problems. Command and

control was conducted from CONUS and from a US Navy command ship. While the complete tables of organization of the staffs were not available for examination, the lessons learned allow us to contrast Operation Uphold Democracy with Operation Restore Hope.

These operations reflect the complexity of modern combat and non-combat operations. Both required the establishment in theater of a large network of staffs, special purpose boards, governmental and non-governmental agencies, all supported by a myriad of communications links, liaisons and linguists. The analysis of both examples provides insight as to what portions of the staffs may be retained in CONUS, and to what extent the rest of the footprint in theater can be reduced over the short to mid-term period.

Before continuing, the term "footprint" requires a definition. The footprint of a JTF is the operational area devoted to munitions storage, logistics, command and control (C2) facilities, support personnel, and other collateral resources required for support and sustainment of operations.[3] For the purposes of this paper, analysis will be limited to command and control facilities, associated communications equipment and related support packages, and headquarters and supporting staffs.

Commander and Staff Decisionmaking

In 1989, RAND published a study analyzing how the information flow on a staff assists a commander with decisionmaking.[4] The study was based on human interaction, not on the hardware that helps communication. The findings of the study provide a better understanding of how communications technology affects the decisionmaking process.

Success in war begins with the commander making the right decisions. To do so, he requires information that is relevant, accurate and timely. The staff is there to sort through the available information, get that which is not readily available, and present it to the commander in a manner pertinent to the commander's image or mental representation of the situation.[5] The commander usually wants more than facts. He wants the staff to give him an assessment explaining what the facts mean.[6]

To provide the commander the information, options and assessments he needs, in an efficient manner, the staff must understand the commander's mental image. In other words, the staff must understand what the commander is looking for and why he feels he needs it.[7] The commander and his staff must have an interactive information flow, a dialogue. It is not enough the commander listen to what the staff has to tell him. He must communicate his image frequently and then confirm that the staff understands him. Two methods commanders often use to confirm images are the validity check (asking a question to which the commander already knows the answer) and the brief-back.[8] Understanding the commander's image is also important if the staff members (and subordinate commanders) are to carry out his intent properly. If the command is operating in a complex, uncertain environment, where chances for misunderstanding are high, the commander will use these techniques more frequently. During operations in Somalia, certainly a complex environment, the 10th Mountain Division found that brief-backs were an important tool of command.[9]

Poor decisions occur when the information conveyed is incorrect. This happens in one of four ways.[10] One way is when the commander's image is simply misunderstood.

This occurs when an individual misinterprets the commander's intent or attempts to read into vague guidance. The individual then acts according to a false impression of what the commander desired or directed.

A second way information is conveyed incorrectly occurs out of the desire to reduce uncertainty. A staff member, under pressure to provide simple, direct answers to the commander, may respond without suggesting the degree of uncertainty attached to the response. Intelligence officers face this problem when presenting their interpretation of enemy intentions. An inexperienced S2 may announce confidently that the enemy is retreating, but in reality he cannot be sure.

Another cause of error is when individuals focus on the wrong level of detail. A division commander who is too involved with a battalion's actions may lose sight of what the brigades are doing, or what is occurring on the division's flanks.

Information can also be conveyed incorrectly when it does not reach the right destination, or it arrives at the wrong time. In this case omission of information can delay the commander's decision excessively, or worse, the commander can make a poor decision due to outdated information.

The preceding illuminates the difficulties of decisionmaking in a large, hierarchical organization engaged in military operations. Success in a fluid and complex environment requires a cohesive command and staff. There must be constant interaction and a rapid exchange of information if the commander is to keep a correct mental image of the situation, and just as important, if the commander is to share that image with the staff and subordinate commanders.

If information exchange is vital to decisionmaking, it will be useful to understand how information is exchanged between the commander, his staff and subordinate commanders. The RAND study identified three modes of information exchange that they labeled pipeline, alarm and tree.[11]

Pipeline is the largely one way transmission of information proceeding according to a set order and format. Examples include the decision briefing and standardized reports and forms. The pipeline style is well suited to regularly scheduled or highly structured information exchanges. It is ideal when all inputs are available and time is short.

Pipeline information is usually sent automatically to the command post according to the unit's standard operating procedures.[12] The commander sees little of the hard data collected. Instead, it is usually displayed symbolically (bar charts, color coded symbols), with the staff prepared to give the commander the details, if requested.

Pipeline mode is inadequate in three situations. The first is when critical information is unavailable. If this happens during a decision brief, then the opportunity for the commander to determine future actions and gain a new shared image with the staff has been lost. To counter this, staffs often are deluged with information that may be of little importance to the decision being made, yet the staff still has to spend valuable time sorting through the assembled mountain of data.

The second situation is when the content of the information drives the requirement to present it, such as when the commander only wants to hear about a unit's combat effectiveness when it falls below a certain level. In this case, the mode of information exchange has changed to the alarm type.

Alarm mode information exchange occurs when the commander needs information because it may influence operations significantly. Examples include enemy use of chemical agents, movement of the enemy's reserve, and the combat effectiveness of the friendly main effort. The commander explicitly designates alarm information requirements with the commander's critical information requirements (CCIR). Alarms are also set implicitly through shared military experience (reporting an unexpected enemy breakout, for example). Implicitly set alarms always exist because it is difficult to identify what events or set of events should trigger an alarm. The key to successfully transmitting alarm mode information is ensuring that the commander's image is shared, so that all echelons recognize the circumstances requiring alarms. From a communications standpoint, the main concern is that the unit recognizing an alarm can get the information to the commander. If alarm information sent up the chain is not recognized as important by the usual intermediaries, then the commander may never see it.

Pipeline information is also inadequate when the decision's input variables are not known in advance. An example is when reports suggest the enemy is repositioning, and the commander realizes his information requirements are different from that presented by the pipeline mode. At this point the commander's new queries are a transition to the tree mode of information exchange.

Tree mode information exchange occurs when the commander needs to establish or verify that his mental image of the battle is in harmony with what is actually taking place. Tree mode is inquiry-based; that is, the commander requests specific information, either through normal channels or directly from the information gatherer, the sensor or the

person with the facts. The resulting information then generates additional requests as the commander's mental image adjusts to changing conditions. Tree mode information exchange often takes place face-to-face. The commander questions the staff or a subordinate commander, and analyzes not only the verbal response but also the body language of the individual. For example, the commander, meeting with a subordinate commander, wants to know if the unit is ready for offensive action after two days of hard fighting. While the subordinate commander's reply sounds confident, the commander notices that his hands shake and he appears exhausted. Concerned, the commander asks how much sleep the subordinate has had, and then he asks more details about the state of the unit. The responses indicate the unit is physically and mentally worn out, as is the subordinate commander. Though willing, the subordinate commander is unable to lead his unit in further combat.

The preceding example demonstrates that the tree mode of information exchange is hard to automate. Each response by the subordinate modified the commander's assessment, and generated additional inquiries until the commander was satisfied he understood the capabilities of the unit. Had the subordinate's responses (and in this case his appearance) been different, the commander would likely have asked different questions. What the commander asks is based on his experience and is highly subjective. No automated system can anticipate all the possible questions a commander may ask.

The example reinforces the value of face-to-face discussions, especially for tree mode information exchange. The commander might have accepted the subordinate's initial assessment if he had not evaluated his physical and mental condition in person. Body

language often conveys more than the spoken word, much less an E-mail or written response.

Interviews conducted by the RAND study authors confirm that commanders prefer face-to-face interaction with their staff and subordinate commanders because it is the most effective way of ensuring that they share a common mental image.[13] Yet there are other reasons why face-to-face communications are valued.

Martin Van Creveld states that formal communications systems, with their virtues of standardization, brevity and precision, hinder unstructured discussions. Such discussions generate original thinking, improving the quality of communications while reducing their quantity.[14] Van Creveld then offers some relevant advice;

> ... some of the current ideas concerning the ways to protect future headquarters against destruction by precision-guided munitions homing on their electronic emissions are wrong; and that the proposed solution, namely dispersion and mobility achieved through having each officer sit in his own van and use modern technology to communicate with others, is not only prohibitively expensive but will lead to a host of demoralized, out-of-touch people exchanging vast amounts of data about nothing at all. Far better ... [to put] all the key officers into a single vehicle, thus permitting face-to-face interaction.[15]

Van Creveld's comment that isolation causes individuals to lose touch with the events of the battle is one of the risks of split-based operations. Staff members living comfortably in CONUS may lose their perspective of the conflict, simply because they fail to appreciate what the combat units are going through. S.L.A. Marshall, summarizing on his observations of units in the Pacific campaign of World War II, echoes this assessment. He felt that the use of wire and radio by the staff impeded information exchange, and stated, "... many headquarters people become strangers to the front and cannot speak its

language or understand its tribulations."[16]

Van Creveld also references, "the demoralized... people," a clear indication that forms of communication affects morale. Not only is face-to-face communications useful for gaining a shared mental image, but personal contact is the best way to motivate subordinates and staff. Being a good commander requires more than good decisionmaking, it requires leadership. A good example of leadership at the senior officer level was provided by General Petain in WWI, when he personally met with front-line troops to help quell the mutiny of the French Army. Visiting over ninety divisions in a few months, he gained the soldiers' trust through small, informal group discussions. "Thus it was that the Commander-in-Chief of the sociologically most backward army on the western front demonstrated the techniques whereby the leadership of a mass organization could be made a living reality to the individuals in its ranks."[17]

Face-to-face communications does more than help the commander adjust his mental image and minimize miscommunication. It enhances the generation of ideas. It keeps people (including the staff) from getting out of touch, and it lets "command presence" serve as a motivational tool. These factors have influenced the location of both the commander and the staff. The commander positions himself where he can interact personally with the forward commanders, yet still meet with the staff to get intelligence updates, provide guidance and issue orders. The staff usually divides into two or three command posts (CP); a small, mobile forward CP that stays close to the commander, a much larger main CP, with robust communications systems, that processes information and makes minor decisions, and possibly a rear CP for sustainment and security issues.

How is commander and staff interaction during split-based operations modified from that which exists with the present command post arrangement? Currently, the staffs at the main and rear command posts can visit the forward CP periodically for meetings, coordination, or simply to understand the environment near the battle. Through personal contact, the staffs can stay in touch and correct their own mental image. Likewise, the commander and the forward CP staff can visit the main and rear CPs to correct problems, to better understand their situation, or to motivate subordinates.

With split-based operations, as envisioned in future warfighting concepts, there may not be a main or a rear CP close at hand in theater with which to coordinate. If staffs are located in CONUS, personal visits between the different locations probably will not happen. How is a commander to ensure that organizations in CONUS stay in tune with operations in theater? Answering this requires a closer examination of future warfighting concepts.

The Promise of Future War

Force XXI and Sea Dragon concepts depend on the rapid collection and processing of information about both enemy and friendly forces. Part of this information will be transmitted digitally as a graphic, real time image of battlefield forces, that includes phase lines, objectives and battle positions. This picture of the battlefield will be sent to all levels of command as part of the commanders' shared mental image. Commanders will scale the image individually and alter its contents as needed.[18]

More detailed information will be accessible immediately from a sophisticated

storage and retrieval system. For example, a brigade wanting intelligence about enemy obstacles in its zone, used to request the information from division G2, who then might have contacted the corps or JTF headquarters using phone, radio, or message. If available, the needed information would arrive at division in the form of small scale overlay without the detail the brigade really wanted. The brigade would have to transpose the information to a larger scale map, filling in the details with good guesswork. In comparison, Force XXI anticipates the brigade S2 accessing the information electronically from a databank, avoiding the intermediate commands and getting the information, at the level of detail desired, in minutes or hours, not days.[19]

The rapid movement of information and a common picture of the battlefield, combined with more lethal, longer range weapons, will transform warfighting. Combat forces will be smaller and dispersed, yet the accelerated information flow will allow the forces to act more rapidly and decisively. Forces may be better characterized as sensor units that target opposing forces for destruction by longer range weapon systems. Advanced communications will support a greater span of control as commanders exchange information directly with multiple levels down the chain of command. The combat organization will become flatter and more non-hierarchical, with fewer intermediate levels of command.

Because of the increased tempo of operations, the commander will make decisions over a shorter time span. Maintaining a proper mental image of the battlefield requires rapid and direct access to information, and a staff with a solid understanding of what the commander needs. Force XXI has the staff organized into a small, mobile Battle

Command Support Center (BCSC), consisting of key individuals located forward to assist with current operations, and adjusting plans for future operations.[20] Automated computer systems will perform many routine staff functions once handled by large, fixed CPs. Other staff functions related to intelligence analysis, future plans generation and combat service support will be performed in CONUS.

The commander will position himself forward, for he must remain in close contact with his commanders and able to see the terrain and units in action. Personal interaction will still be essential to the commander:

> During combat, commanders should issue orders and intent face-to-face whenever possible. Orders are best understood overlooking the terrain on which the operation is to be conducted. . . . Transmission of orders via radio, fax, or computer should be followed up with a personal meeting to ensure clear understanding of the intent and the orders as soon as the circumstances permit.[21]

While the TRADOC pamphlets reaffirm that the commander's personal presence and leadership motivates and guides combat forces, they acknowledge that the staff, the commander, and the combat units will be dispersed across the battlefield. Even with automation and nearly instantaneous information access reducing the commander and staff's workload, there will be little time for meetings. Most communication will be by radio, E-mail, and local area networks. Robust, long range satellite links will connect the commander, subordinate commanders, the BCSC and the CONUS support staff.

How will the Force XXI commander maintain the degree of personal interaction necessary for motivation, to generate "good" ideas, to keep people from losing touch during fast paced operations, and to adjust his own mental image? Many feel that video

teleconferencing (VTC) can supplant personal contact. Individuals talk enthusiastically about VTC terminals integrated into combat vehicles, with a video screen in front of each staff member and commander. They will be able to partition the screen, pull up and display maps and data in certain windows, and view a video image of someone in another window while talking to him as in a normal meeting.[22]

It is questionable whether or not VTC can replace personal interaction. Those in favor of VTC state that it lets one read body language and facial expressions, see gestures, and hear intonation and pitch changes just as in normal conversation. Such "virtual" meetings can be more effective than normal ones because one can pull up and display a database on the screen while maintaining eye contact, then transmit it instantly to the other person's screen. There won't be a need to end the meeting because the information is back in the home office.[23]

VTC will allow for much more of the informal discussion that Van Creveld feels is necessary for idea generation. It permits face-to-face discussions, making it easier to convey mental images and intent. But what the division commander will be viewing is the head and shoulders of the subordinate commander with the unchanging interior of the armored vehicle as a backdrop. He will not see other things that help the commander gain an appreciation of the unit's situation, such as the condition of the crew or the terrain being contested. He may ask to see video of the enemy positions. If available, the footage will likely be filmed from a single viewpoint, and it will lack the depth of view that eyesight provides. In short, the commander will not have the freedom to see what he wants to see, or to gain a feel for the situation based on the many subtle sensory

indications one receives through physical presence.

VTC may be more useful to the higher level commanders and staffs, such as a JTF, for internal communications and to communicate with organizations in fixed or semi-permanent facilities. Instead of one-on-one conversations, these units can use larger VTC systems that enable larger audiences to view each other. Such meetings rely less on subtle visual cues than on presenting simple information and exchanging ideas.

Operation Uphold Democracy used VTC frequently for communications among the higher level commands, with excellent results. There were two systems in use, with each permitting audiences in conference rooms to view each other. One was the Joint Worldwide Intelligence Communications System (JWICS) network, with the US Atlantic Command (USACOM extension, that connects the USACOM Joint Intelligence Center (JIC) with USACOM component commands, and JTF forces with national organizations, including the National Military Command Center. JTF forces included CJTF-180 (XVIII Airborne Corps headquarters) on the Mt. Whitney and the Marine Air Ground Task Force (MAGTF) on the USS WASP.[24] The other system was the Genser command and control network that used the Advanced Communications Technology Satellite (ACTS) VTC terminals. These were located at Port-au-Prince, Cap Haitian, Fort Bragg and Fort Drumm. Fort Bragg ties into the Defense Communication Teleconferencing Network, allowing CJTF-190 (10th Mountain Division headquarters) to teleconference with CJTF-180 on the Mt. Whitney.[25]

Both systems were highly praised. JWICS;

> became the preferred means of communicating between national

> command authorities, the theater and the JTF and other commanders ashore and afloat . . . It allowed decisionmakers to interact with all command levels to obtain a clear, common, view of the situation . . . [JWICS] gave participants an understanding of the local situation through display of charts, maps, and images not available through other means . . . 'it really helped clarify a lot of unknowns. For example, the staff didn't know what the UN military information officer intended, or what their requirements were. It [JWICS] was invaluable.'[26]

As good as the VTC systems were, statements from the J2 staff, JTF-180, aboard the Mount Whitney, indicate that VTC is not a panacea that can replace personal interaction on the battlefield.

During the first month of the operation, when CJTF-180 was in charge of JTF-190 in Port-au-Prince, the J2 staff of JTF-180 tended to become isolated from the operation unless they pulled information aggressively and proactively from all directions. Intelligence information exchange between the JTF-180 JIC staff and the JTF-190 JIC staff was neither timely nor accurate.[27] A senior JTF-180 J2 staff member felt that split-basing was a major disadvantage. "Without periodic trips to the shore it is very easy to develop a bunker mentality and develop a narrow view of the operation based solely on reports. The reports and communications are great, but we still needed to get out occasionally and place them in context."[28] The same officer did feel that being set up aboard the ship before the operation began let the staff concentrate fully on the operation.

An internal VTC system that connects all sections of the staff can be very useful for shared imaging. The staff of JTF-180, on board the Mt. Whitney, had television monitors in all of its spaces. They received staff updates and CNN news updates regularly, enhancing shared imaging. On the other hand JTF-190, located at Port au

Prince, only had one small television in the joint operations center (JOC) providing CNN coverage, so many people didn't get the news. For staff updates, everyone crowded into the JOC. Those in the back of the room had a difficult time hearing the brief.[29]

These comments suggest that split-based operations may work best during initial entry and short duration operations. Over the mid to long term, it will be desirable to transition into the theater those staffs in CONUS. But there are other reasons, even during initial entry operations, why the JTF commander will require a sizable staff on the ground in theater almost immediately. One reason is the large number of tasks that a modern JTF must perform compared to a "service pure" command, and the nature of those tasks. To explain this, the next section will examine a JTF staff in more detail.

JTF Staff Functions in the Theater of Operations

Modern JTF staffs are normally created from existing division or corps-sized headquarters. A division staff is a large organization that is difficult to reduce. During the Army's Battle Command Training Program (BCTP) Warfighter exercises, divisions often field main command posts supported by upwards of 300 personnel.[30] Turn the staff into a JTF and it gets even larger. For Operation Uphold Democracy, the 10th Mountain Division headquarters became JTF-190, and the division staff grew from 240 to 640 personnel.[31] The same thing happens with Corps-sized headquarters. JTF Somalia, organized around the I Marine Expeditionary Force (I MEF) and the senior command during Operation Restore Hope, established a headquarters in Mogadishu consisting of between 778 to 906 personnel. The table of organization for JTF Somalia is listed in

appendix A.[32]

JTF staffs are large, mainly because of the variety of specialized tasks they perform, tasks that require a significant presence in theater. First, JTF staffs must coordinate/control forces from different services. Because each service still operates with procedures and policies that are to some degree different from the other services, staffs sections usually contain personnel from all of the participating services. This helps the staff better understand the priorities and points of view of each service, but at the cost of a larger staff.[33] The US Army felt that in Somalia, the lack of experienced Army officers on the JTF staff hindered the JTF's effectiveness.[34]

Second, JTF staffs usually deal with coalition forces. In Somalia, the JTF was in charge of forces from at least twenty countries.[35] If interoperability is an irritant during joint operations, the problems are magnified tenfold when other nations are involved. Not only do coalition forces operate differently than US forces, but they often speak a different language, maintain different command relationships within the JTF, and even have different reasons and aims for participating in operations. The Zimbabwe contribution to coalition operations in Somalia is a good example of the last point. Initially, the nation sent a 1000 man force, but after arrival in Mogadishu they realized they would have to pay their own way. They reduced the force to 130 soldiers.[36]

To effect coordination with coalition forces, JTF Somalia assigned over 80 Marines as liaison to the coalition forces.[37] Included with the liaison teams were vehicles, radio operators and radios, some of which were UHF SATCOM radios.[38] To assign the liaison teams and arrange for the needs of the coalition forces, as well as to assess their

capabilities, the JTF established a Coalition Forces Support Team. The team was headed by the Deputy Chief of Staff and included an S2, S3, S4, and a Staff Judge Advocate. All were originally augmentees to I MEF. Their duties required that they remain close to the arrival locations of the incoming forces.[39]

JTF-190 in Haiti had similar experiences. Cohesion was fragile. Some countries' commitments varied, as changing political and economic factors affected their motivation. Lacking in training and short of equipment, the nations became jealous and sometimes hostile to US forces if US support seemed to favor certain nations over others.[40] As in Somalia, the US forces provided liaison and communications gear.[41]

Besides joint and coalition concerns, JTFs deal extensively with host nation issues. For Haiti, the civil affairs force consisted of 52 officers and 34 enlisted personnel who manned the J3/CA, the CMOC, and operated as special assessment teams.[42] To support the deployed forces with interpreters, the JCS assembled 376 Creole linguists.[43]

Other organizations required extensive personal interaction. They were the non-governmental organizations (NGOs) and the private volunteer organizations (PVOs) providing humanitarian relief. In Somalia there were over forty-nine agencies involved with relief efforts.[44] Since the focus of military operations during Restore Hope was the security of humanitarian relief supplies, close interaction with these diverse agencies was essential. Because civil affairs were being handled by working through the private agencies, a Civil Military Operations Center (CMOC) served as the primary interface between all humanitarian agencies in country and military forces. In addition, the CMOC provided a forum where the agencies could exchange information and deconflict their

agendas.[45]

In Haiti the CMOC was a busy place, so JTF-190 wanted to have NGO/PVO liaison personnel work out of a tactical operations center. Some of the NGOs and PVOs were reluctant to work in the military environment, so a Humanitarian Assistance Coordination Center (HACC) was established away from military compounds, easing coordination difficulties.[46] Interpreters were necessary to the effectiveness of the HACC. They answered all incoming calls, because most of the conversations were in French or Creole.[47]

In Somalia there was a significant problem in airspace control. Somalia had few airfields to handle all the relief supplies flown in on aircraft chartered by the agencies, and there was no governmental airspace control agency. Initially the JTF created a Joint Force Air Component Command (JFACC) structure with 108 personnel. This was later changed to an Airspace Control Authority (ACA), composed of 52 persons, conducting only one of the duties of a JFACC.[48] Still later, the ACA was disestablished and the ACA duties were absorbed by the component commands. A JTF working group, composed of members from the ACA and the J-3 air staff, had meetings with the national civil aviation authorities and a number of other organizations and commercial carriers contracted by NGOs , the World Food Program and the International Committee of the Red Cross, to develop a workable airspace plan for Somalia. The agencies balked at military control of airspace, and the JTF working group reported that there were "significant cultural and bureaucratic impediments" when dealing with the agencies. The NGOs who did cooperate, "required extensive and numerous briefings to ensure they fully understood and

complied with all control measures."[49]

JTF staffs have to deal with significant land management issues. Each arriving US and coalition force needs assembly areas, and each major subordinate headquarters will want adequate space for its own operations. Assigning land for operations is a complex task that is a full-time responsibility. Both JTF Somalia and JTF-190, in Haiti, found it was necessary to establish a Joint Facilities Utilization Board (JFUB). The primary duty of the JFUB in Somalia was to arbitrate real estate issues, especially among the component services. The JFUB also became responsible for coalition forces accommodations, the Ammunition Supply Point, the Joint Visitors Bureau, postal facilities and transit personnel facilities.[50]

The JFUB in Somalia had a difficult assignment. The JTF did not have a good idea what land was available in Mogadishu, though they did know space was limited. Because there were no remaining communication systems in the city, headquarters elements needed to be collocated if possible. This was further exacerbated because the Somali's tended to cut communication cables, either to sabotage or steal the copper, so communications between enclaves depended on radio and microwave.[51] As a result, there was a good deal of jostling over the various sites, including the 52 acre US embassy compound (where the JTF headquarters was located), the port complex where the military competed for space with relief supplies, the airfield, and the soccer stadium. By Christmas, the JTF headquarters, the three service component headquarters, the Coalition Forces headquarters, as well as the 9th Communications battalion and the 11th Signal Brigade, filled the US Embassy compound.[52]

Reports from the Haiti operation describe some of the JFUB's specific tasks. Haiti was a permissive environment, so land had to be leased for base camps and facilities. This meant teams had to locate the owner, negotiate cost, and clear the premises for occupation. This was a lengthy process that did not make land available fast enough. The delay resulted in massive equipment parks and temporary housing around the airfield and port. For lodgement and expansion operations, the engineer staff needed two mobile district teams that included a facility engineer team, a utilities team and a fire fighting team complete with equipment.[53]

So far, this section has identified five special organizations, or cells, that a JTF must establish to manage specific concerns in theater. There are some other cells that are worth mentioning. One is the Joint Visitors Bureau, mentioned earlier, which, in Somalia, was manned by 37 personnel.[54] Others include the Joint Information Bureau, manned in Somalia by 59 personnel, and the Staff Judge Advocate (SJA) section. USCINCACOM addressed the importance of the latter two in its after action review of Haiti.

> Joint legal staffs are needed in joint operations. Each service should have at least one senior SJA at the JTF headquarters ... The JTF office of the SJA must have legal assistance attorneys ... The Joint Information Bureau (JIB) must be adequately resourced and have the support necessary for it to operate at full capability from the beginning of an operation. Linguists are critically important to the JIB's ability to interface with the local media.[55]

Lieutenant General Anthony C. Zinni, commanding general of I Marine Expeditionary Force, US Marine Corps, has identified about one hundred integrated staff cells that JTF commanders can select from and establish in theater for specialized tasks. An integrated staff cell is a functional organization as opposed to the traditional staff

section that performs a group of related tasks (e.g., J1, J2, etc.). Figure 1 lists some of these cells.[56] The cells are grouped under normal staff section titles for convenience only. The T/O for Somalia, appendix A, reflects that some of the cells will report directly to the commander. In Somalia, the JIB, the CMOC and the Joint Visitors Bureau were separate organizations.

The intelligence cells would appear to offer the greatest opportunity for increased split-basing. Indeed, the Army's Force XXI concept anticipates that much of the intelligence processing can be accomplished in CONUS. That may be the case for a single service operation, but lessons learned from Somalia and Haiti indicate this may not be easy in modern joint operations.

The Army was critical of the size of the 778 man JTF Somalia staff. "A staff this large challenges the ability of the commander to ensure effectiveness is tempered with efficiency," states an Army Lessons Learned report.[57] Much of the criticism was directed at the 206 man J2 staff section, which, the authors' claim, was composed of strategic analysts mainly, even though the majority of the intelligence came from human sources.[58]

While JTF Somalia deployed with a large J2, the ARFOR (10th Mountain Division) deployed with a very small intelligence section, thanks to split-based operations. ARFOR used two Trojan Spirit communications systems to provide, via commercial satellite, JDISS (Joint Deployable Intelligence Support System) transmissions of intelligence imagery, information and data from its headquarters at Fort Drum. Though it requires robust, dedicated communications and powerful automation equipment, Trojan Spirit allowed the ARFOR G-2 to deploy with 15 staff members, instead of the 67

JTF INTEGRATED STAFF CELLS

PERSONNEL
JOINT RECEPTION CENTER
EPW MANAGEMENT BOARD
JOINT AWARDS BOARD
MWR COMMISSION

INTELLIGENCE
JOINT INTELLIGENCE CENTER
" COLLECTIONS BOARD / SARC
" CRYPTO RESOURCE BOARD
" RESERVE INTELLIGENCE CTR
" INTERROGATION FACILITY
" DOCUMENT EXPLOITATION CTR
" INTELL SUPPORT ELEMENT
NATIONAL INTELL SUPPORT TEAM

PLANS
FUTURE PLANS CELL
OPERATIONAL PLANNING TEAM
POLITICAL-MILITARY GROUP

COMMAND AND CONTROL
COMMAND COORDINATION CELL
JOINT COMM CONTROL CTR

MEDICAL
JOINT DISEASE CONTROL BOARD
" MEDICAL CONTROL BOARD
HEALTH SERVICE SUPPORT BOARD
JOINT BLOOD PROGRAM OFFICE
JOINT PATIENT MVMNT REQ CTR

OPERATIONS
FORCE FIRES PLNG & COORD CTR
JOINT TARGETING COORD BOARD
COMBAT OPERATIONS CENTER
FUTURE OPERATIONS CELL
REAR AREA OPERATIONS CENTER
CIVIL-MILITARY OPERATIONS CTR
SECURITY ASSESSMENT TEAM
DOCTRINE & DOCUMENTATION CELL
JULLS TEAM
SPECIAL OPERATIONS TEAM
JOINT SEARCH AND RESCUE CTR

LOGISTICS
JOINT MOVEMENT CONTROL CTR
" AVIATION LOG SUPPORT BOARD
" MAT PRIORITY ALLOC BOARD
" MORTUARY AFFAIRS BOARD
" CONTRACTING BOARD
" PETROLEUM BOARD
" FACILITIES UTIL BOARD
" HOST NATION SUPPORT BOARD
" LOGISTICS COORD BOARD
LOGISTICS READINESS CENTER

OTHER
ROE COMMISSION
JOINT INFORMATION BUREAU
INFORMATION MANAGEMENT
TECH ADVISORY & ANALYSIS BOARD
JOINT VISITORS BUREAU

FIGURE 1

personnel in the section.[59]

But split-basing was not the sole reason for the small size of the ARFOR G2. The 10th Mountain Division also took advantage of intelligence support from other headquarters in theater. For example, services such as terrain and weather were provided by the JTF Somalia J2. If the J2 could not have provided the services, the ARFOR G2 cell would have been twice as large.[60] Additionally, much of the intelligence analysis and intelligence products generation and dissemination was performed by JTF Somalia.

10th Mountain Division was not as successful shrinking the G2 when it deployed as JTF-190 to Haiti. Instead of deploying with 15 members as it did in Somalia, or even with the full 67 man staff, the JTF-190 J2 section eventually consisted of 150 personnel. Of these, only 48 were organic to the 10th Mountain Division. USACOM supplied 49 by tasking its service components, the JTF-180 MI brigade provided 36 soldiers, and a 17 man NIST (National Intelligence Support Team) rounded out the J2.[61] The NIST is composed of people from various governmental intelligence agencies that, "provide timely national level all-source intelligence to deployed commanders during crisis or contingency operations."[62] JTF Somalia also deployed with a NIST team.

Why was it so hard for the 10th Mountain Division to reduce its intelligence staff? Because the Division G2 had to perform many of the functions a Corps would normally conduct when it became the JTF-190 J2. The division had to bring terrain and weather teams to Haiti. The J2 needed automation support and an imagery production and dissemination capability not resident within the division. The divisional all source analysis section was heavily augmented because staffing was inadequate.[63]

What occurred with the J2 section of JTF-190 does not invalidate split-basing operations. The resources available for Operation Uphold Democracy do not provide enough evidence to support such a broad conclusion. The resources do indicate that the complexity of the mission and the many tensions among the Haitians required a large and visible US presence in Haiti. Since the JTF had overwhelming firepower superiority, there were no significant force protection issues to cause the JTF to resort to split-based operations. These conditions permitted the concentration of the staff in Haiti, thereby enhancing its effectiveness. Aside from this, the resources confirm that many of the integrated staff cells must be located in the theater because they fulfill duties that require a high degree of personal interaction.

Communications is the Key

At the JTF level, communication involves a complex network of systems and highly technical interfaces that require precise management. Each communications system, and often individual components, needs specialists for maintenance and operation. The JTF commander exercises command over the communications system through the commanders of the communication units. He exercises control through the JTF J6.

The theater communications manager (the JTF J6) builds the communications infrastructure with a variety of different communications systems. The systems must permit access into the US strategic Defense Communications System (DCS), which includes the Defense Switched Network (DSN), the Defense Data Network (DDN), and the Worldwide Military Command and Control System Intercomputer Network

(WWMCCS/WIN). The DCS systems are controlled by the Defense Information Systems Agency (DISA). Actual access occurs at fixed ground stations called entry points or gateways. Gateways are simply an interface into different communication systems.[64]

One of the communications systems available to the JTF is UHF satellite communications (SATCOM). The terminals are small and extremely mobile, but they have limited throughput and cannot support heavy traffic. Also, a sophisticated opponent can jam UHF quite easily. Normally, a JTF will use UHF SATCOM initially as the command net, then transition to a different system when available. The UHF SATCOM subsequently supports alternate or backup nets.

Ground Mobile Forces (GMF) tactical SHF satellite terminals are large systems that provide primary access into the DCS via the Defense Satellite Communications System (DSCS). The DSCS is the high capacity satellite system (large "pipes") necessary for the transmission of imagery and video. The DSCS satellite are simply conduits, or links, for transmissions to reach the gateways. SHF systems also are used for high volume intra-theater communications, especially when terrestrial systems are inadequate. The two principle GMF terminals are the AN/TSC-85, for inter-theater access to gateways, and the AN/TSC-93, for intra-theater use. The TSC-85 is larger than the TSC-93 but it demands less power from the satellite, an important consideration since satellite power is a major limitation to throughput.

HF communication systems can provide DCS entry and intra-theater communications during initial operations. Since HF transmissions can be affected severely by atmospheric conditions and require daily frequency changes, the JTF will migrate to

more reliable systems when they are established.

Besides satellite-based systems, the JTF can use a number of terrestrial systems, some of which provide DCS entry. These include troposcatter, microwave, SINCGARS, and Tri-Service Tactical Communications (TRI-TAC) equipment (TRI-TAC includes the Army's Mobile Subscriber Equipment, a cellular communications network). Managing these systems is difficult because some are analog, some are digital, and they use a variety of frequency bands and different operating ranges. Ensuring connectivity requires numerous interfaces and detailed knowledge of switching requirements and interoperability standards.

When designing the theater communications architecture, the J6 will want to ensure robustness. That is, he will want both large pipes for maximum information flow and he will want multiple routing, often using different systems, for point-to-point communications. For example, intra-theater transmissions between higher and lower headquarters may use MSE and microwave for most information, with SHF SATCOM and HF radio as a backup. Commanders might use UHF SATCOM to communicate with each other when mobile. The point is that the architecture designer will plan on using as many systems as possible to ensure adequate throughput even if the communications infrastructure is targeted. Even though Somalia and Haiti did not appear to have a force capable of degrading our communications capability, the terrain and the environment both countries drove the designers to factor robustness into the communications architecture.

From a communications aspect, Somalia had no resources available and satellite access was scarce. The communications had to support operations in a country almost the

size of Texas. The initial communications suite for the CJTF in Mogadishu was delivered aboard 3 C-141 aircraft. The transports contained a Blazer communications package, 6 AN/MRC-142s, UHF SATCOM, HF and VHF single channel radios (SCR).[65] The AN/MRC-142s provided multichannel connectivity between the port, airfield and US Embassy grounds.[66] The Blazer is a modified Chevrolet with a relatively small multichannel SHF satellite terminal and UHF SATCOM SCR. It provided access into the DCS network for strategic command and control.[67]

The Blazer is part of a package provided by the Joint Communications Support Element (JCSE). Under the operational control of the Chairman, Joint Chiefs of Staff (CJCS), the JCSE provides communications support for JTF operations worldwide.[68] If a large JTF requires extensive communications support, the JCSE advertises that three C-5 aircraft will provide the JTF headquarters a 125 person contingency communications package that includes a video teleconferencing service.[69] CJTF Somalia did ask for a full scale contingency package, but because of the remoteness and harsh environment of Somalia, the communications gear and support package required 6 C-141s and 7 C-5s for lift.[70] The existence of the JCSE contingency packages is tacit acknowledgement that most corps-sized units, those most likely to be tasked to be a JTF, do not have the communication assets to support JTF operations and require significant augmentation.

The communications network for Somalia depended heavily on satellite communications. Because of the need for long distance links, terrestrial troposcatter terminals could have been the backbone for communications, but the terminals are large and heavy, and sealift would not deliver them soon enough.[71] The final plan called for all

intra-theater GMF satellite links to use the Indian Ocean (IO) DSCS satellite and all external links on the Eastern Atlantic (ELANT) DSCS satellite. The use of the spare IO satellite conserved bandwidth and power on the ELANT satellite, which was needed in case Central Command had problems with Iraq. The external link would go to a CONUS gateway at CENTCOM headquarters, MacDill Air Force Base. An AN\TSC-93 SHF terminal later established a GMF link into Japan via a Pacific DCS entry point.[72]

Even after the GMF terminals arrived, UHF SATCOM provided important communications. The radio operators supporting the coalition liaison teams used SCR UHF SATCOM.[73] Backup was with HF non secure radio. UHF SATCOM became restricted because the few channels available were needed for other CENTCOM operations, so HF was used frequently.[74] Unfortunately, coalition forces and NGOs also relied on HF, increasing the JTF J6 responsibilities for frequency management.[75]

Besides military satellites, the JTF used commercial satellites. Two commercial communications terminals were placed in the embassy compound. They provided redundancy and alternate routing normally provided by the host nation, but non-existent in Somalia. Operated by civilian contractors, the commercial systems released military equipment to cover other contingencies and assisted the transition to civilian systems as the operation became less military in nature. Unfortunately, the commercial systems lacked portable power and environmental control equipment, and they initially were incompatible with the military network. The contractors also failed to provide food, water and tents to shelter personnel and equipment, or an adequate parts block. The military ended up providing these requirements. The commercial satellite team members also felt

no obligation to stay and operate equipment in a hostile situation.[76]

Forty five days after the JCSE communications package arrived in Somalia, the ARFOR was tasked to assume responsibility for the theater communications infrastructure. This is because JCSE assets are vital for rapidly establishing connectivity in a crisis. The CJCS pulls them out when the service components can put in place a more permanent system. Theater communications responsibility was given to an ARFOR communications task force built around the 10th Signal Battalion. This task force, comprised of over 600 personnel from 12 different signal units, built a theater communications network which included multi-channel SATCOM, troposcatter equipment, MSE, microwave and single channel SATCOM.[77]

Added up, the satellite terminals were a significant part of the JTF footprint. Just around Mogadishu, there were 10 GMF terminals, 2 commercial satellite terminals, numerous UHF SATCOM terminals, and approximately 200 INMARSAT terminals operated by both military and nonmilitary agencies. INMARSAT is a commercial satellite system that is popular because the portable terminals are user operated. Their small throughput capacity prevents the transmission of imagery.[78]

A communications laydown this extensive is bound to experience some significant problems. The most pressing concerns in Somalia centered on satellite saturation, staff limitations, span of control and cost of commercial communication systems.

Because the Indian Ocean region has limited DSCS coverage, the combination of JTF Somalia and CENTCOM communications quickly began taxing the DSCS system. Additionally, the IO satellite was a spare and past its life expectancy. Consequently it was

difficult to track. This led to erratic communications.[79]

Another factor contributing to satellite saturation centers on the concept of "reachback". Reachback is the ability of a communicator to use DSCS satellites to talk to another site, such as a service component headquarters in CONUS, without passing through a DISA controlled gateway. For example, CENTAF placed a GMF satellite terminal at Langley Air Force Base, providing a direct link between CENTAF and air component commands in the Somali theater. Communicators favor reachback because it provides direct and therefore fast links between headquarters, avoiding delays and potential trunk preemption. DISA discourages the use of reachback communications stations because their smaller dish antennas require more satellite power than do the large DCS entry dishes operated by DISA, and the demand for access through the satellite is a problem.[80]

Availability of UHF SATCOM channels also was a problem. Because UHF SATCOM allows long range communications with a mobile terminal, there were many potential users in Somalia. For example, ARFOR had 20 SCR SATCOM terminals available, twice its allowance. Unfortunately the available channels did not meet requirements. CENTCOM had 12 channels available to use in the whole AOR. JTF Somalia was given use of 5 of the channels, and they could afford to let ARFOR use only one channel.[81]

The shortage of military satellite channels resulted in the widespread use of commercial satellite systems. One of the sources cited 45 INMARSAT terminals in use by US military units.[82] Heavy INMARSAT use degraded commercial satellite access,

resulting in command and control and safety concerns for the NGOs and PVOs that depended on it for commercial telephone access.[83] Concerning the two contractor-operated commercial systems used by JTF Somalia, one of the contractors leased Russian satellite access. Initially this was a matter of concern because the system was being used for intelligence transmissions, but the concerns were unfounded.[84] Later, the terrorist bombing of the World Trade Center affected commercial satellite transmissions by cutting a SATCOM trunk that downlinked in New York.[85] The preceding statements point out the limitations of commercial satellite systems and the need for alternate routing.

Both the Marines and the Army experienced shortfalls in equipment and staffing for operations in a joint environment. The Marine Corps' 9th Communication Battalion supported connectivity among the various enclaves in Mogadishu and provided telephones to four different headquarters and all message center support to the JTF, the ARFOR and the Joint Support Command (a logistics unit). The battalion experienced extensive circuit switching inadequacies and interoperability problems. SHF systems aboard Navy ships could not access tactical GMF systems, nor were the telephones on ship interoperable with TRI-TAC. The Marines' terrestrial microwave was old and ineffective for the distances required, and the system was back loaded onto ships after two weeks of use.[86]

Later, when ARFOR assumed responsibility for the JTF's C4I network, the 10th Signal Battalion recognized that it was not staffed to manage it. The system was complex, consisting of Army MSE, joint TRI-TAC, and commercial systems. The battalion had no experience with the latter two systems. The ARFOR G6 should have been augmented with staff from ARCENT, but they were already deployed elsewhere in the CENTCOM

region.[87] The 10th Mountain Division after action report also noted that communications with coalition forces was difficult because of problems with communications systems interoperability.[88]

ARFOR found that its communications were insufficient to cover the assigned areas of responsibility. Establishing and maintaining long distance communications for convoy security operations, as well as with higher headquarters and humanitarian agencies, was a serious challenge. The 10th Mountain division felt that it needed more HF radio and portable tactical satellite terminals, along with access to SATCOM channels, so platoons, companies and battalions conducting security operations could communicate.[89]

The costs for commercial satellite service became a major planning consideration for the JTF.[90] The INMARSAT terminals were a particular concern because their use is difficult to control. The Marine Corps estimated that if all of the military operated INMARSAT terminals operated for no more than 2 hours per day, costs could exceed one million dollars monthly.[91] Added to that is the costs to lease the two commercial satellite terminals operated by JTF Somalia.

Operation Uphold Democracy took place in an environment very different than Somalia. Haiti is less than five percent the size of Somalia, and it is on an island located conveniently close to the US. The proximity of Haiti within the greater CONUS satellite coverage allowed communicators to access MILSTAR and other special purpose satellites, along with UHF and SHF SATCOM, and INMARSAT.[92] Also, communicators had a sophisticated communications architecture already in place in the waters surrounding Haiti. Two aircraft carriers, a command and control ship (the Mt. Whitney),

and an amphibious ready group were afloat nearby, and intermediate staging bases on nearby locations had access to all necessary satellite-based systems.

Communications support for the operation was planned deliberately, but the last minute change from a forcible entry scenario, executed by the 82nd Airborne Division, to the actual permissive entry, executed by the 10th Mountain Division, caused a crisis for the communicators. Because of the late change in the plan, JTF-190 went in with a very small advance CP with few communications systems. The 10th Mountain's initial communications package was sitting at Ft. Bragg without airlift support. JTF-190 had anticipated arrival after the XVIIIth Airborne Corps had established a basic communications infrastructure. Instead, the JTF had to build the communications network from scratch.[93]

Despite the problems, satellite communications and the Army's MSE were used as planned as the backbone of the communications architecture.[94] Initially, forces ashore were to rely on SCR UHF SATCOM and multichannel SHF SATCOM. As JTF-190 moved out of Port-au-Prince, the major city where initial entry operations occurred, communications were expanded and more GMF SHF systems were deployed. Communications then transitioned to a commercial backbone system.[95]

Once ashore , communication equipment was brought in rapidly. Nearly two dozen GMF terminals were fielded in September. These included Army AN/TSC-85s and AN/TSC-93s and similar Air Force terminals.[96] DCS provided primary connectivity to CONUS. The component commands used reachback capabilities extensively because the extensive satellite coverage in the region provided plenty of transmission throughput on

the DSCS satellite system. Even so, CJTF-190 exercised preemption rights on the DSCS system to ensure component commands didn't interrupt the JTF's transmissions.[97]

The entry operations depended on mobile SATCOM terminals. 44 UHF SATCOM channels were allocated for the operation. Of these, 26 channels were taken from peacetime users and disrupted their communications. JTF forces in and around Haiti used up to 24 channels, 19 more than were available to JTF Somalia.[98] To support use of the channels, JTF-190 increased its quantity of SCR UHF SATCOM terminals to 35, through augmentation.[99]

To provide additional mobile satellite communications, JTF-190 operated at least 16 INMARSAT terminals. The commanding general, the chief of staff and the operations officer each had one. The two subordinate brigades had four each, and five were given to the JTF J3. The special weather officer and the 7th Transportation Brigade had one each and the JSOTF operated several. The NIST teams also came with some. INMARSAT use was high for the first 30 days because DSN (telephone) access was very difficult.[100] Also, INMARSAT was expensive. Individual circuits cost the JTF up to 10,000 dollars per month.[101]

Because DISA restricts DSCS satellite gateway access to contingency support, the command J6 staff was encouraged to have the forces in Haiti transition to contracted commercial communication services, thereby unburdening the gateways. The problem was not with the DSN calls being placed through INMARSAT, but with the numerous military and nonmilitary (servicemen's morale and welfare) calls being placed through the DSCS network. Commercial systems would also free up critical GMF assets that might be

needed elsewhere. The J6 staff was successful in this endeavor. By January, the number of GMF satellites in Haiti was reduced to four.[102]

Besides satellites, the Army used MSE for terrestrial communications, supplemented by four Tactical Shortrange Support terminals (TSSRs) microwave systems. The MSE could interface the DCS system through TRI-TAC switching equipment.[103] Other systems used in Haiti included independent systems operated by the Joint Logistics Supply Center (JLSC) and the JSOTF. The JLSC operated a cellular phone system while JSOTF used manpacked HF and UHF SATCOM systems.[104]

Even though Haiti is a small country, communications were provided to many organizations, and the communications units and staff needed to operate and manage the networks were quite large. JTF-190 and JTF-180 provided communications support to the JSOTF, the American Embassy, other government agencies and the Haitian Government. MSE and TRI-TAC equipment supported JSOTF, JPOTF, UN monitors at the JTF headquarters, the Caricom Battalion (a coalition battalion supporting the operation), the HACC, the Haitian police, the International Police Monitoring Agency, a detention facility and coalition forces.[105] Five communication units, in addition to a JCSE support package, were needed to support the operation. These included two Army signal battalions, two Army signal brigades, and an Air Force combat communications group.[106] Just to manage the MSE communications network, one of the signal brigades brought to Haiti a subordinate signal battalion, consisting of 145 soldiers.[107]

Compared to operations in Somalia, the communicators in Operation Uphold Democracy experienced more problems related to staff training and shortfalls than with

satellite restrictions. Concerning the latter, only MSE and UHF SATCOM suffered from overuse. UHF SATCOM was so popular, due to ease of use, that users reported a high degree of interference.[108] Morale and welfare (MWR) calls through MSE-accessed reachback links interfered with mission essential calls. The only solutions are to either reduce the number of MWR calls permitted, or to increase the number and size of the links into theater.[109] The latter will occur as satellite coverage increases, but slowly.

Once again, the 10th Mountain Division was vocal in citing the shortcomings of its staff and signal battalion regarding joint operations. The division feels it doesn't have the personnel to form the nucleus of the J6 and JCCC, and manage the TRI-TAC network. The nucleus of these two organizations came from the Army Information System Command, with augmentees from Air Force and Marine Communication units. Unfortunately, the augmentees weren't familiar with MSE.[110]

USACOM, in its report on the operation, points out that JTF communicators need specialized training they do not get in their service specific roles. They are responsible for joint frequency management (a complex process), and they need to know the capabilities and limitations of all the communications systems in theater. They also have to maintain the equipment, which, in Haiti, failed frequently due to the hot, humid climate.[111] The increased automation and communication capabilities at the JTF and component levels increases the need for skills like network designers and maintenance personnel.[112] Simply put, the more complex the communications system, the more the operation requires trained specialists to operate and maintain the equipment. These functions must be conducted where the equipment is used, not back in CONUS.

The communications problems that occurred in Somalia and in Haiti will continue to occur in future operations. A Department of Defense report on Haiti identified the causes succinctly:

> Communications challenges centered on the massive amount of new technology coupled with little or no operator training and the lingering effects of drawdowns and personnel cuts. This left many units understaffed and undertrained to assume responsibility for systems operation and maintenance.[113]

Conclusions

Command, control, and communications are inherently complex processes that defy attempts for management with fewer resources in the theater. The command and staff actions, necessary for effective information exchange and decisionmaking, require a significant degree of personal interaction. Direct interaction, where dialogue occurs both verbally and non-verbally, serves to minimize miscommunication, generate ideas and inspire subordinates. The requirement for direct human interaction is unlikely to be migitated by new communications technologies.

Future warfighting concepts anticipate using advanced communications technologies to conduct more effective information exchange with less direct personal contact. But tools, like video teleconferencing, cannot displace person-to-person interaction. In a dynamic, complex environment, commanders and staff members cannot be limited to gaining awareness of a developing situation through electronic reports or a camera. They must have the freedom to gain information by experiencing the environment.

Modern JTF operations also must have a large staff in theater to address the great number of specialized and complex issues inherent in peace and humanitarian operations, and both joint and coalition warfare. Operations in Somalia and Haiti serve to illustrate this point. Various specialized staff cells had to deal with service differences, language and cultural barriers, and nonmilitary agencies with their own agendas. Future operations will be no different.

Finally, the communications required to support JTF operations demand large and highly technical systems throughout the theater, along with hundreds of servicemen and specialists to operate and maintain the necessary communications equipment. But the communications environment is changing dynamically. Many countries in which we have operated in the past, such as Saudi Arabia, are putting a lot of money into national communications systems. These systems will offer a JTF opportunities to eliminate many of the communications assets that, in the past, the entering force had to bring into the theater.

None the less, the communications requirements of extended military operations will place a burden on the most robust communications systems. Even modern systems, which have a good deal of unused capacity, will be stressed by the consequent surge of demand. Additionally, many of the places that the US will respond to over the next few decades will be similar to Somalia and Haiti. These are poor countries, racked by internal strife, with decaying infrastructures. In those cases, the JTF will have to be self-supporting.

It is likely that with the current pace of technological change, the JTF commander

will maintain a more current picture of the environment, will make decisions faster, and will communicate to his staff and subordinates more effectively. But fog and friction will not be eliminated, just reduced. The challenge is determining what parts of the staff and infrastructure can be eliminated in theater, and still manage the fog and friction as well as coordinate the actions of all the other players, from the service components to the nonmilitary agencies.

APPENDIX A

	JTF Somalia (UNITAF) staff	
MAJOR SUBORDINATE ELEMENTS	SUBORDINATE ELEMENT COMPOSITION	NO. (906)
CJTF support staff		**24**
	Generals, C/S, Sgt Maj & Aids	6
	Staff Secretary and support	5
	security	4
	drivers	3
	other	6
Political Advisor		**8**
	Political. Advisor and Deputy C/S	2
	admin and interpreter	3
	security	3
Joint Information Bureau (JIB)		**59**
	Dir, deputies, admin and drivers	9
	media/press/photo officers	12
	Operations and PA chiefs/specialists	12
	journalists (incl. photo)	4
	Photographer, videographer, GA	3
	editor, NCOICs	3
	5 Sub-JIB teams (total #)	16
Joint Visitors Bureau		**37**
	Dir, deputy, protocol & escort off	7
	Det ARFOR/SOF	4
	admin support	6
	OIC/asst OIC	5

	itinerary/ log/ trans off	5
	drivers	8
	LNO for JIB and NGOs	2
Comptroller		**8**
J-1		**59**
	Dir, Deputy, operations off, admin, driver	10
	adjutant section (incl CMCC)	19
	Joint Rec Center	6
	Chaplain	3
	SJA section	8
	MWR	2
	Safety branch	4
	postal off	1
	Red Cross reps	3
	Centcom, ARFOR, AFFOR LNOs	3
J-2		**206**
	Dir, deputy and support staff	6
	operations branch (incl tgt intel sect)	12
	MC&G branch	8
	COC watch section	4
	MAFC/Analytic sect (weather, JDISS)	35
	dissemination/production	14
	systems support unit	30
	collection branch	26
	SCI/humint branch (w/ 19 linguists)	30
	SSO/SIO/EW branch	36
	intel plans/LNO branch	5
	Det SRIG (no numbers given)	

J-3		**106**
	Dir, deputies and support staff	14
	Joint Operations Center (JOC)	21
	Naval section	9
	Air section	12
	engineer, NBC	2
	Future Operations Section	11
	Liaison Element (includes 4 coordinators, 13 LNOs sent out and 13 received)	30
	Provost Marshal and Psyop Det	7
J-4		**123**
	Dir, deputies and support staff	9
	Plans and Operations section	16
	Transportation section	14
	Material and services section	23
	engineer section	30
	Host Nation section	7
	Surgeon and support staff	14
	Joint Medical Regulating Office (JMRO)	10
J-5 (plans and policy)		**19**
	Dir, deputy, LNOs, clerk/drivers	9
	JOPES/ WWMCCS branch	10
J-6		**42**
	Dir, deputy and support staff	6
	Operations	5
	JCCC (SYSCON) w/DISA LNO	9
	CG support	3
	Plans (w/ 4 LNOs received)	16
	JCMO	3

Hqtrs Commandant		**158**
	commandant w/ immediate staff	6
	personnel/admin	13
	Operations /logistics section	13
	Motor transport section	43
	Mess section	12
	maintenance section	25
	supply section	10
	Medical section	7
	Security section	29
The detachments		**57**
	Special Operations section	4
	Civil-Military Operations Center (CMOC)	10
	Combat Camera Det.	23
	Theater Component Section (includes nation's LNOs to JTF)	9
	Epidemiology Team Det	6
	Forward Lab Det	5

GLOSSARY

ACTS	Advanced Communications Technology Satellite
ACA	airspace control authority
AOR	area of responsibility
ARFOR	The US Army service component command
BCSC	battle command support center
BCTP	US Army Battle Command Training Program
CA	civil affairs
C2	command and control
C4I	command, control, communications, computers and intelligence
CCIR	commander's critical information requirements
CENTAF	Central Command Air Force component command
CENTCOM	Central Command
CJCS	Chairman, Joint Chiefs of Staff
CJTF	commander, joint task force
CMOC	civil military operations center
CNN	Cable News Network
CONUS	continental United States
CP	command post

DCS	Defense Communications System
DDN	Defense Data Network
DISA	Defense Information Systems Agency
DSCS	Defense Satellite Communications System
DSN	Defense Switched Network
ELANT	Eastern Atlantic
GMF	ground mobile forces
HACC	humanitarian assistance coordination center
HF	high frequency
INMARSAT	International Maritime Satellite system
IO	Indian Ocean
JCCC	joint communications control center
JCS	Joint Chiefs of Staff
JCSE	Joint Communications Support Element
JDISS	Joint Deployable Intelligence Support System
JFACC	joint force air component command
JFUB	joint forces utilization board
JIB	joint information bureau
JIC	joint intelligence center
JLSC	Joint Logistics Supply Center
JOC	joint operations center

JSOTF	joint special operations task force
JPOTF	joint psychological operations task force
JTF	joint task force
JWICS	Joint Worldwide Intelligence Communications Network
LOC	line of communication
MAGTF	Marine air ground task force
MEF	Marine expeditionary force
MI	military intelligence
MILSTAR	Military Strategic Tactical Relay Satellite
MSE	The US Army's Mobile Subscriber Equipment
MWR	morale, welfare and recreation
NGO	non-governmental organization
NIST	National Intelligence Support Team
PVO	private volunteer organization
SATCOM	satellite communications
SCR	single channel radio
SHF	super high frequency
SINCGARS	single channel ground air radio system
SJA	staff judge advocate
T/O	table of organization
TRADOC	US Army Training and Doctrine Command

TRI-TAC	Tri-Service Tactical Communications equipment
UHF	ultra high frequency
USACOM	US Atlantic Command
USCINCACOM	US Commander-in-Chief Atlantic Command
VHF	very high frequency
VTC	video teleconferencing
WWI	World War One
WWMCCS/WIN	Worldwide Military Command and Control System Intercomputer Network

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28. C4I Integration Support Activity, OPERATION UPHOLD DEMOCRACY- An Assessment of Intelligence and Communications Systems and Networks, 2-3.

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33. US Army, Operation Restore Hope: Lessons Learned Report, 3 December 1992 - 4 May 1993, IV-5.

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36. Ibid., 2-A-26.

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93. Ibid., 3-4, 3-6.

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